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A COMPARISON OF THE ORAL LANGUAGE DEVELOPMENT OF HEAD START PUPILS WITH NON-HEAD START PUPILS.

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ORAL LANGUAGE DEVELOPMENT OF TWO GROUPS OF DISADVANTAGED FIRST-GRADE CHILDREN WAS COMPARED. ONE GROUP OF 52 SUBJECTS PARTICIPATED IN A PROJECT HEAD START SUMMER PROGRAM, AND THE OTHER GROUP OF 52 SUBJECTS DID NOT. TO DETERMINE IF CHILDREN OF LIMITED OPPORTUNITY, PARTICIPATING IN PROGRAMS DESIGNED TO BROADEN EXPERIENCES, EXHIBIT SUPERIOR LANGUAGE DEVELOPMENT SEVERAL MONTHS AFTER SUCH PARTICIPATION, THE INVESTIGATOR DEVELOPED AND ADMINISTERED A MEASUREMENT OF VARIOUS ASPECTS OF ORAL LANGUAGE. FINDINGS SHOWED THAT (1) PROJECT HEAD START PARTICIPANTS DISPLAYED GREATER ORAL LANGUAGE DEVELOPMENT THAN NON-HEAD START PARTICIPANTS FOR BOTH BOYS AND GIRLS, AND (2) PROJECT HEAD START ACTIVITIES WERE MORE EFFECTIVE IN ENCOURAGING THE ORAL LANGUAGE DEVELOPMENT OF LOW-INTELLIGENCE PUPILS THAN HIGH-INTELLIGENCE PUPILS. BASED ON THESE FINDINGS, RECOMMENDATIONS WERE MADE FOR TYPES OF MATERIALS AND ACTIVITIES TO BE INCLUDED IN HEAD START CURRICULUMS, AND FOR FUTURE RESEARCH IN THIS AREA. (GD22

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RESEARCH REPORT

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CHAPTER I

INTRODUCTION

Children's oral language development is currently the object of many research studies. It is known that normal children enter the first grade with the ability to use and respond to oral language. This ability is apparently the result of listening to and speaking the language used within the family and neighborhood. Most children, when measured by expectancy standards appropriate to six year olds, have learned to understand and use their language freely and easily upon school entrance.

This is true of most normal children. However, there is a rather large group of children who cannot be considered normal in this respect. These are the disadvantaged children for whom Project Head Start was designed. The objects in their homes, and their relationships with family members, by and large, constitute their whole world. This environment of meager stimulation has molded most of their lives up to the time of attendance at school. Research has left no doubt that an environment meager in stimulation, and often damaging in terms of emotional well-being, can slow or twist a child's development--including oral language development.

Research evidence reported in the literature indicates that a marked relationship exists between socio-economic status of the family and the child's linguistic development. McCarthy (5, pp. 557-560) summarizes numerous research reports published prior to 1945 bearing on this question. Meckel (7, p. 970) presents a summary of the later literature, repeating

some studies included by McCarthy. There is unanimous agreement that disadvantaged children as a group are noticeably behind in language development. Accordingly, Project Head Start materials (3, p. 9) list generalizations pertinent to oral language development, as follows:

> they tend to do poorly in language; they have small vocabularies and often seem unable to speak up and out;
> they sometimes don't know the names of things, or even that things have names;
> they may not have experienced any environment other than their own house or apartment;
> they may appear to feel uncertain of who they are, what they look like, how they fit into their world;
> they often seem to be lacking in curiosity.

Several studies cited by McCarthy (5, p. 505) and Meckel (7, p. 970) indicate that an environment which broadens a child's experience is also likely to increase his vocabulary. Project Head Start places major emphasis on the provision of activities and experiences designed to broaden the experiences of disadvantaged children. Project evaluators are asked to characterize Project Head Start staff activities in twenty-seven areas. At least twelve of these areas specifically relate to activities which enhance oral language development. This study is designed to determine whether limited opportunity children participating in these experiences exhibit superior language development several months after the experiences.

Statement of the Problem

The problem of this study was to compare the oral language development of two groups of disadvantaged children in the first grade. The two groups were comparable except for the fact that one group of fifty-two disadvantaged children was selected from those participating in Project Head Start activities during the summer of 1965. The second group of fifty-two disadvantaged children was selected from those not participating in Project Head Start

activities during the summer of 1965. The six aspects of oral language compared were: extent of verbalization, spoken vocabulary, expressions of tentativeness, use of structural patterns, use of vivid and colorful expressions, and use of mazes.

The following sub-problems were involved:

1. To determine the status of oral language development exhibited by two groups of disadvantaged first grade pupils.

2. To determine whether disadvantaged pupils participating in Project Head Start activities demonstrated significantly greater maturity in the various aspects of oral language development than disadvantaged pupils not participating in Project Head Start activities.

Hypotheses

The hypotheses for this study were as follows:

1. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities as measured by eight extent of verbalization aspects, as follows:

   a. total number of words in transcript
   b. number of phonological units
   c. length of phonological units
   d. number of communication (sentence) units
   e. length of communication (sentence) units
   f. number of maze units
   g. length of maze units
   h. number of words between mazes

2. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project

Head Start activities in six aspects of their vocabulary development, as follows:

a. Diversity--Type-Token Ratio for first 100 words
b. Diversity--Type-Token Ratio for second 100 words
c. Diversity--Type-Token Ratio for combined 200 words
d. Frequency--Number of words used in 10,000 most commonly used words in English language
e. Frequency--Number of words used in 10,001 to 30,000 most commonly used words in English language
f. Frequency--Number of words used in 30,001 plus, most commonly used words in English language

3. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in the number of expressions of tentativeness.

4. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in their mature use of structural patterns in their sentences, as follows:

a. number of Noun-Linking Verb-Noun (N-LV-N) units
b. number of partial or incomplete units

5. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in the number of their colorful and vivid expressions.

6. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in their use of mazes, as follows:

a. number of mazes used as edits and holders
b. number of mazes used as noises and repeats

Significance of the Study

The major significance of this study was that it made an attempt to evaluate the attainment of one of the major objectives of Project Head Start activities--the enhancement of oral language development. A second significance of the study rested on the belief that if the oral language development of disadvantaged children was enhanced through participation in Project Head Start activities, then greater effort should be made to increase participation in established Head Start programs and/or the value of establishing additional Head Start programs would have been demonstrated.

Definition of Terms

For purposes of this study, the following definitions of terms were used:

Project Head Start activities are those activities engaged in during an eight week session prior to first grade enrollment by the fifty-two children chosen for this study. The curriculum provided those children conformed to the recommendations made in Office of Economic Opportunity publication H 16-Daily Program I.

Oral Language is the spontaneous, spoken utterances made by children during structured interviews recorded on tape. Responses were segmented into phonological units, communication units, and mazes according to the scheme devised by Loban (4, pp. 14-15).

Total number of words in transcript are all words not in mazes. Only those words elicited in response to picture stimuli were transcribed for analysis.

Phonological units are utterances occuring between silences; they are dependent upon the patterns of sound made by the human voice; they are

judged by the contours of inflection, stress, and pause in the subjects' voices. (Example: /Well/ the boy's running / and the girl's running / /and the other boy/ he's way behind with a ball /#).

Communication units are subdivisions of the larger phonological units; they can be identified by the semantic meaning which is being communicated; they cannot be further subdivided without the loss of essential meaning. The phonological unit above contains three communication units, each separated by a (/).

Language mazes are tangles of language which do not make semantic sense and cannot be classified phonologically or semantically. They can be identified as noises, holders, repeats, or edits. The word /well/ in brackets in the phonological unit above is a maze used as a holder. The words /and the other boy/ in brackets in the phonological unit above comprise a maze which can be identified as an edit. Mazes used as edits and holders rather than as noises or repeats discriminate between children high and children low in oral language proficiency. Other examples of mazes are:

Noises are unintelligible sounds such as ah, er, and the like.

Holders are used to hold attention such as well, you see, and now uh.

Repeats are repetitions of words such as you--you, I think--I think.

Edits are words used to indicate a correction or change of direction in what is being said by the speaker.

Number of words between mazes is the average number of non-maze running words occuring between mazes in the samples.

Extent of verbalization has to do with the sheer magnitude of verbal responses in terms of number of words in transcript, number of phonological units, length of phonological units, number of communication units, length of communication units, number of mazes, length of mazes, and number of words between mazes.

Expressions of tentativeness are statements of supposition, hypothesis, or condition; a definite measure of language maturity. (Examples: It's supposed to be a boy, but I'm not sure. Let me think what they would be called.)

Structural patterns comprise a linguistic system for classifying the language responses uttered by children into categories so as to determine their frequency of occurrence and variety of use by the subjects in this study. The frequency of use of the Noun-Linking Verb-Noun (N-LV-N) pattern and the partial or incomplete sentence pattern discriminates between high and low oral language proficiency children.

Vivid and colorful expressions are unique ways of saying something. They usually occur when a child attempts to use structural patterns or word change rules with which he is not familiar. Presence of these expressions is a mark of oral language proficiency. (Examples: The dog will juggle and wet himself off. She almost dropped her hands up.)

Vocabulary is comprised of those words uttered by pupils in response to interview situations. The two aspects, each with three sub-aspects, were diversity and frequency.

Diversity of vocabulary is determined by the number of different words in each segment of one-hundred consecutive non-maze words.

Frequency of occurrence is determined by the frequency of usage of each word in the English language as found in the Thorndike-Lorge list of

30,000 words. This list was consulted for placement. High oral language students use fewer 10,000 to 30,000 words than low, but more one to 10,000 and 30,000 and up words.

Limitations of the Study

1. This study was limited to those elements of oral language development listed in the problem. It is recognized that other elements are present in the total development of oral language, such as style, use of movables, subordination, etc., but no attempt was made to include them.

2. Application of the conclusions of this research is limited to situations in which there are similar populations and similar Head Start programs and educational programs.

Basic Assumptions

1. An analysis of samples of children's oral language can be used as a measure of their oral language development.

2. The technique used to analyze oral language development was valid for purposes of this study.

Related Research

One study making a major contribution to the refinement of a procedure for analyzing and quantifying children's language has been reported by Loban (4, pp. 11, 81-88). The methods described made it possible to replicate the procedures so as to scientifically study the language of disadvantaged children in both its semantic and structural aspects. The previously nebulous and fluctuating phenomenon of human symbolic language has now been stabilized. Three new criteria for distinguishing stages of

growth in language--mazes, evidence of tentative thinking, and colorful and vivid expressions--were identified. Normative data were presented on such questions as the size of children's vocabulary, the use and control of sentence patterns, and the interrelationships of oral language and competence in writing, reading, and listening. This study replicated Loban's technique of segmenting samples of oral language.

Strickland (9, pp. 4-6, 104-106) reports another important study related to this research. She reports a descriptive comparison of the structure of sentences used by children in their oral language with the structure of sentences in selected samples of textbook material designed for their grade level. The spoken language of children in the elementary grades was recorded in a loosely structured situation. The spoken language was then analyzed to determine the syntactic structure of sentences, length of sentences, and the frequency of occurrence of certain patterns of syntax. The frequency of use of the Noun-Linking Verb-Noun sentence pattern was found to discriminate between high and low oral language development students. This aspect was measured for the two groups in this study.

In addition, mazes used as holders or edits rather than as noises or repeats were found to discriminate between high and low oral language proficiency students. This study measured and compared the use of mazes made by the groups of children involved.

Giles (2) reports a study on the effects of two approaches to reading instruction upon the oral language development of first grade pupils. The objective of his study was to determine the relative effectiveness of the language experience approach and the traditional basal reader method of teaching beginning reading upon oral language development. To attain this

objective six aspects of oral language development were measured and compared. The present study replicated collection and analysis procedures used in that dissertation study.

Summary

In this chapter, the problem of this research and the purposes and hypotheses are set out. A statement of its significance is given and particular terms used are defined. Limitations are enumerated and basic assumptions held are listed. Relevant aspects of related research are also presented. In the next chapter a description of the organization and design of the study is given.

CHAPTER II

ORGANIZATION AND DESIGN OF THE STUDY

The problem of this study was to compare the relative status in the development of oral language skills of two groups of disadvantaged first grade pupils. The solution of this problem required the measurement or quantification of the various aspects of oral language. Six aspects of oral language were measured and compared. The oral language development status of each subject was determined during the seventh month of first grade enrollment in Spring, 1966. One group of fifty-two disadvantaged first grade pupils were chosen because they had participated in Project Head Start activities during eight weeks of the summer of 1965. The second group of fifty-two disadvantaged first grade pupils resided in the same area, were eligible for Project Head Start participation, but were chosen for this study as a comparison group because they had not participated in these activities during the summer of 1965.

The experimental design for this study is described by Campbell and Stanley (1, pp. 178, 195-197) as the Posttest-Only Control Group Design. This design was chosen because suitable antecedent scores on oral language development were not available on those children participating in 1965 Head Start programs. This design also ruled out the hypothesis of differential mortality between experimental and control groups. The independent variable in this experiment was Project Head Start activities. The dependent variables were the various aspects of oral language as follows: extent

of verbalization (eight aspects), expressions of tentativeness, use of structural patterns (two aspects), and vocabulary (two aspects).

Background information on age, sex, and measured intelligence were gathered so that groups could be compared inasmuch as other studies of children's language have identified such factors as influencing language proficiency. Evidence concerning one-hundred four subject's use, development, and control of oral language was collected. The dependent variables (aspects of oral language) chosen were reported in the research of Loban (4), Strickland (9), and Giles (2), as differentiating between high and low oral language proficiency.

Population and Sample

The five teachers from whose classes children were selected to participate in this study were similar in terms of training and experience. Daily schedules, so far as time allotments for the two groups were concerned, were similar. Instruction in all five classrooms was coordinated within the building for the entire year. Pupils attended class for approximately 215 minutes of classroom instruction daily.

The 104 subjects participating in this study were chosen from the total first grade population of the school community designated as disadvantaged children by the school district officials. The subjects were chosen from the Dunbar Elementary School area of Fort Worth, Texas. The subjects chosen for participation comprised approximately one-half of the total first grade population. The total first grade population of the area was designated as disadvantaged by the district. All first graders had been eligible and invited to participate in Project Head Start activities.

Group A subjects were chosen because of their participation in Project Head Start activities during the summer of 1965. Group B subjects were chosen because of their lack of participation in Project Head Start activities in the summer of 1965. Pupils who were repeating first grade were excluded from the study.

The mean chronological age in months for the head start group was computed to be 85.52. The mean chronological age for the non-head start group was 84.71. There were twenty-nine boys in the head start group and thirty boys in the non-head start group. There were twenty-three girls in the head start group and twenty-two girls in the non-head start group. The mean intelligence score for the head start group was 101.40 and 84.60 for the non-head start group.

Intelligence Quotients were obtained for each subject by using the California Test of Mental Maturity. These tests were routinely administered to all first grade children in the school participating in the study by personnel of the school district in charge of testing as a part of the regular school program. Tests were provided and scored by the school. Test results were made available for this research after interviews had been taped.

Data and Instrumentation

In the present study evidence concerning the 104 subject's use, development, and control of oral language was required on each subject. Plans were carried out to collect data concerning (a) eight aspects of their extent of verbalization, (b) two aspects of their vocabulary usage, (c) their use of expressions of tentativeness, (d) their use of basic structural sentence patterns, (e) their use of mazes, and (f) their use

of vivid and colorful expressions. Background information on date of birth, sex, and measures of intelligence were gathered as reported in the description of the sample of subjects.

Each subject was interviewed individually and his spoken responses recorded on magnetic tape to preserve his voice. Telephone instruments were used as microphones. The telephone "microphones" were part of a standard Teletrainer Kit available to all schools and furnished by the local telephone company through its educational representative. The teletrainer Kit is comprised of two working telephones on long cords, one for the subject and one for the person doing the interviewing in this study, plus a simple-to-use control panel which enabled the interviewing person to provide ringing signals. This kit also enabled the interview conductor to have immediate confirmation as to whether the responses were of sufficient magnitude of volume to be recorded. An extension cord was provided to connect the equipment with a recorder so that the conversation samples could be preserved for later transcription and analysis. The success of this technique had been previously demonstrated in a dissertation study by Giles (2).

Recordings were made in school settings familiar to the subjects. Each interview followed a standardized form. In cases where extra questions were asked, the purpose was solely to encourage the flow of language already on its way. At the beginning of the interview, the examiner encouraged the child to become "talkative" by asking him questions about playmates, games, illnesses, and wishes. Next, the child was shown, for the remainder of the interview, a series of eight pictures, the same pictures being used for all subjects. Only responses to the series of pictures were transcribed

and analyzed. Two "warm-up" pictures preceded the test pictures. Each subject was encouraged to talk as much as he desired about each picture. The pictures chosen were those used by Giles (2) in his dissertation study. The subjects were reminded at the time of presentation of each new picture to tell what they saw and thought about each picture. New pictures were presented to each subject when it became obvious that he had completed his observations about the previous one.

Oral language samples were transcribed into typewritten form. These transcriptions were segmented according to the linguistic scheme used and reported by Loban (4, pp. 14-15). Communication units (sentences) were then analyzed and categorized according to ten basic structural patterns described by Roberts (8, pp. 21-54), plus a partial or incomplete category. The six aspects of oral language were thus analyzed and quantified from these transcriptions. The aspects of oral language measured and compared for the two groups were those found by Loban (4) and Strickland (9) to differentiate between high and low oral language proficiency students.

The tapes were audited as many times as necessary to assure proper division of the speech into phonological units. This was accomplished through careful attention to juncture, intonation, and meaning. It was necessary to listen to each tape from eight to ten times before perfect transcription was achieved.

One oral language sample was collected from each subject. The sample was collected in April after seven months of first grade instruction for all subjects, plus the eight weeks of head start activities for Group A. Telephones, just as they had in the earlier study by Giles (2), proved to be satisfactory as microphones. They also proved to encourage the flow

of language. Recording time, for the responses to be analyzed, required from eight to fifteen minutes per subject. The establishment of rapport, explanation of interview procedure, and preliminary instruction required an additional five to eight minutes per subject.

Procedures for Treating the Data

Hypotheses one through six required the computing of the means, standard deviations, and differences in the means for the head start and non-head start groups. The two groups were further divided by sexes so as to compare the performance of the boys of the head start group with the performance of boys of the non-head start group. This separate comparison of girls versus girls was also done. Further division of the two groups by intelligence levels was done so as to compare the performance of the high intelligence head start group with the high intelligence non-head start group. This separate comparison was again made between the low intelligence head start group and the low intelligence non-head start group.

In order to compare the oral language development status of the two groups, Fisher's t technique was used to test the significance of differences between the means obtained from the two groups, and from the subgroups. Tests for the significance of the difference between the means of the groups were made on the following variables: total non-maze words in the transcripts, number of phonological units, length of phonological units, number of communication units, length of communication units, number of maze units, length of maze units, number of words between mazes, vocabulary diversity, vocabulary frequency, number of expressions of tentativeness, use of the Noun-Linking Verb-Noun sentence pattern, use of the partial or incomplete sentence pattern,

number of vivid and colorful expressions, and use of mazes. The .05 level of confidence was used to determine statistical significance. Tables in McNemar (6) were consulted.

Summary

This study was an experimental design. This chapter has reviewed the process of selecting classes and a description of the subjects involved in the study has been given. The procedures for collecting the data were outlined and the statistical steps required for testing the hypotheses were reported. In the next chapter, the data will be presented under headings related to the hypotheses being tested. Tables will be included wherever helpful.

CHAPTER III

PRESENTATION AND ANALYSIS OF THE DATA

The basic problem of this study was to compare the relative oral language development status attained by two groups of disadvantaged first grade pupils. One group of first graders had experienced Project Head Start activities for eight weeks prior to their first grade enrollment. The other group had not experienced Project Head Start activities prior to first grade enrollment.

The oral language development status of each subject was determined after seven months of first grade instruction. The group means in each of the six aspects of oral language development chosen for comparison were then determined. Fisher's *t* technique was used to test the significance of differences between the means obtained from the two groups, from boys and girls as subgroups, and from high intelligence and low intelligence subgroups. Fisher's *t* tables found in McNemar (6, p. 430) were consulted. Table I indicates a comparison of the group who participated in head start activities on the variables of age, sex, and measured intelligence. The less than one month differences in chronological age between the head start group and the non-head start group was considered, for all practical purposes, to be insignificant. The difference of 16.80 between the 101.40 mean I.Q. of the head start group and the 84.60 of the non-head start group did have special significance which was resolved in the subgroups by intelligence levels. The groups had comparable proportions of boys and girls.

Thus the head start group of disadvantaged children was considered comparable to the non-head start group.

TABLE I

HEAD START GROUP COMPARED WITH NON-HEAD START GROUP ON THREE VARIABLES

Variable	Head Start Group (N=52)	Non-Head Start Group (N=52)
Chronological Age	85.52	84.71
Measured Intelligence	101.40	84.60
Sex (Boys)	N=29	N=30
(Girls)	N=23	N=22

Results of the investigation are presented according to oral language development scores in the eight extent of verbalization aspects, the six aspects of spoken vocabulary, the number of expressions of tentativeness, the mature use of two structural patterns, the number of colorful and vivid expressions, and the mature use of mazes. Presentation of the data follows the order established in the listing of the hypotheses to be tested in chapter I. Tables are presented relative to each hypothesis which outline the results of the study as obtained through the use of the t test.

The First Hypothesis

It was stated in the first hypothesis that there would be a significant difference between the means in eight extent of verbalization aspects with the means of the head start group exceeding the means of the non-head start group. The treatment of the eight extent of verbalization variables is presented in Table II. A t score of at least 1.662 was

TABLE II

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START GROUP AND THE NON-HEAD START GROUP IN EIGHT EXTENT OF VERBALIZATION VARIABLES

Extent of Verbalization Variable	Head Start Group	Non-Head Start Gr.	F Level	t	P
Total Group					
1a Total Words in Transcript	435.31	411.62	.5027	.7090	(NS)
1b Number of Phonological Units	40.87	40.35	.0464	.2154	(NS)
1c Length of Phonological Units	11.07	10.22	1.1152	1.0560	(NS)
1d Number of Communication Units	59.98	60.04	.0002	-.0149	(NS)
1e Length of Communication Units	7.12	6.66	4.3398*	2.0832	.05
1f Number of Maze Units	22.44	23.33	.0826	--.2874	(NS)
1g Length of Maze Units	2.22	2.34	.9193	-.9588	(NS)
1h Number Words Between Mazes	26.73	26.65	.0004	.0203	(NS)
Boys Subgroup					
1a Total Words in Transcript	459.00	436.13	1.0876	.5172	(NS)
1b Number of Phonological Units	43.45	41.53	1.2208	.6032	(NS)
1c Length of Phonological Units	11.15	10.64	.6132	.4786	(NS)
1d Number of Communication Units	63.14	62.93	1.0874	.0401	(NS)
1e Length of Communication Units	7.17	6.76	1.6655	1.4001	(NS)
1f Number of Maze Units	25.48	24.93	1.1094	.1352	(NS)
1g Length of Maze Units	2.19	2.36	.3573	-.9744	(NS)
1h Number Words Between Mazes	22.42	25.99	1.1307	-.7145	(NS)
Girls Subgroup					
1a Total Words in Transcript	405.43	378.18	1.0876	.5383	(NS)
1b Number of Phonological Units	37.61	38.73	1.2208	-.3076	(NS)
1c Length of Phonological Units	10.97	9.66	.6132	1.0679	(NS)

TABLE II (Cont.)

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START GROUP AND THE NON-HEAD START GROUP IN EIGHT EXTENT OF VERBALIZATION VARIABLES

Extent of Verbalization Variable	Head Start Group	Non-Head Start Gr.	F Level	t	P
Girls Subgroup (Cont.)					
1d Number of Communication Units	56.00	56.09	1.0874	-.0155	(NS)
1e Length of Communication Units	7.05	6.52	1.6655	1.5668	(NS)
1f Number of Maze Units	18.61	21.14	1.1094	-.5435	(NS)
1g Length of Maze Units	2.26	2.32	.3573	-.3321	(NS)
1h Number Words Between Mazes	32.16	27.55	1.1307	.8052	(NS)
High I.Q. Subgroup					
1a Total Words in Transcript	427.57	557.67	6.2837*	-2.6861	.01**
1b Number of Phonological Units	41.30	45.13	1.1505	-1.0269	(NS)
1c Length of Phonological Units	10.71	13.01	4.3380*	-1.9206	.05**
1d Number of Communication Units	59.81	74.33	4.0843*	-2.5292	.01**
1e Length of Communication Units	6.98	7.52	7.1286*	-1.6862	.05
1f Number of Maze Units	22.78	32.27	3.0682*	-2.2576	.05**
1g Length of Maze Units	2.20	2.59	1.4615	-2.0209	(NS)
1h Number Words Between Mazes	26.68	19.16	1.0705	1.2798	(NS)
Low I.Q. Subgroup					
1a Total Words in Transcript	454.40	352.41	6.2837*	2.1059	.05
1b Number of Phonological Units	39.80	38.41	1.1505	.3733	(NS)
1c Length of Phonological Units	11.96	9.09	4.3380*	2.3956	.01
1d Number of Communication Units	60.40	54.24	4.0843*	1.0722	(NS)
1e Length of Communication Units	7.46	6.31	7.1286*	3.5840	.01
1f Number of Maze Units	21.60	19.30	3.0682*	.4959	(NS)
1g Length of Maze Units	2.27	2.24	1.4615	.1696	(NS)
1h Number Words Between Mazes	26.85	29.69	1.0705	-.4837	(NS)

*F Level was significant at .05 ** Direction opposite to hypothesis

required for significance at the .05 level for the total group provided an F level of at least 3.92 had been recorded. A *t* score of 1.671 was required for significance at the .05 level for the subgroups when divided by sexes and intelligence scores provided an F level of at least 2.68 had been recorded.

A single extent of verbalization aspect, length of communication units, had a mean difference reaching the .05 level of significance. Therefore, the first hypothesis was accepted for subaspect 1e, length of communication units with regard to the total groups. It was rejected for the seven other extent of verbalization aspects.

When the subjects were separated by sexes and the data examined for boys alone, the *t* score fell below the .05 level of significance again for all eight extent of verbalization variables. It was again necessary to reject the first hypotheses for the boys as a subgroup. Examination of the data presented in Table II for the girls alone revealed that the *t* score again fell below the .05 level of significance for each of the extent of verbalization variables. Thus, the first hypothesis was rejected for girls as a subgroup too.

Examination of the data presented in Table II for the high intelligence subgroup revealed a difference significant at better than the .05 level of confidence for five of the eight extent of verbalization variables. However, the direction of the difference was opposite to that hypothesized on four of the five aspects. Those four aspects were: (1a) total non-maze words in transcript, (1c) length of phonological unit, (1d) number of communication units, and (1e) length of communication units. The difference was as hypothesized for one variable, (1f) number of mazes. Therefore, the

first hypothesis was again rejected for all extent of verbalization variables except (1f) number of mazes.

Further examination of the information presented in Table II for the low intelligence subgroup revealed a difference significant at better than the .05 level of confidence for three of the eight extent of verbalization aspects. Those aspects with differences significant at the .05 level were: (1a) total number of non-maze words, (1c) average phonological unit length, and (1d) average communication unit length.

The Second Hypothesis

It was stated in the second hypothesis that there would be a significant difference between the means of six spoken vocabulary variables with the head start group exceeding the non-head start group. Findings relative to the second hypothesis are presented in Table III which show the significance of differences between the means of the head start group and the non-head start group. Again, a t score of at least 1.662 was required for significance at the .05 level for the total group provided an F level of 3.92 had been determined. A t score of 1.671 was required for significance at the .05 level for the subgroups when divided by sexes and intelligence levels provided an F level of 2.68 had been computed.

The results with respect to the head start group and the non-head start group reveal significant differences between the means of the two total groups on only one vocabulary variable, (2f) frequency from 30,001 and up. Significant differences favored the head start group. Therefore, the second hypothesis was accepted for the total group on one of the six vocabulary variables, but was rejected for the remaining four.

TABLE III

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START GROUP AND THE NON-HEAD START GROUP IN SIX VOCABULARY VARIABLES

Vocabulary Variable	Head Start Group	Non-Head Start Gr.	F Level	t	P
Total Group					
2a Type-Token Ratio First 100 Words	48.29	49.13	.6548	-.8093	(NS)
2b Type-Token Ratio Second 100 Words	47.02	47.88	.9841	-.9918	(NS)
2c Type-Token Ratio Combined	75.60	74.33	.3420	.5848	(NS)
2d Frequency 1 to 10,000	94.29	94.41	.0900	-.3023	(NS)
2e Frequency 10,001 to 30,000	1.92	2.65	6.3594*	-2.5217	.01
2f Frequency 30,001 and up	3.74	2.93	5.5762*	2.3614	.01
Boys Subgroup					
2a Type-Token Ratio First 100 Words	48.38	49.50	.3301	-.8006	(NS)
2b Type-Token Ratio Second 100 Words	47.27	47.94	.4010	-.5858	(NS)
2c Type-Token Ratio Combined	77.21	74.43	.5758	.9596	(NS)
2d Frequency 1 to 10,000	94.33	94.41	.0387	-.1443	(NS)
2e Frequency 10,001 to 30,000	2.03	2.63	2.2032	-1.5557	(NS)
2f Frequency 30,001 and up	3.75	2.96	1.8267	1.7330	(NS)
Girls Subgroup					
2a Type-Token Ratio First 100 Words	48.17	48.64	.3301	-.2885	(NS)
2b Type-Token Ratio Second 100 Words	46.69	47.79	.4010	-.8210	(NS)
2c Type-Token Ratio Combined	73.57	74.18	.5758	-.1863	(NS)
2d Frequency 1 to 10,000	94.23	94.41	.0387	-.2864	(NS)
2e Frequency 10,001 to 30,000	1.78	2.68	2.2032	-2.0107	(NS)
2f Frequency 30,001 and up	3.73	2.90	1.8267	1.5727	(NS)

* F Level significant at .05

TABLE III (Cont.)

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START AND THE NON-HEAD START GROUP IN SIX VOCABULARY VARIABLES

Vocabulary Variable	Head Start Group	Non-Head Start Gr.	F Level	t	P
High I.Q. Subgroup					
2a Type-Token Ratio First 100 Words	48.41	49.07	.2354	-.4013	(NS)
2b Type-Token Ratio Second 100 Words	47.46	47.27	.9822	.1489	(NS)
2c Type-Token Ratio Combined	76.62	76.13	.6662	.1439	(NS)
2d Frequency 1 to 10,000	94.57	94.13	.9251	.6778	(NS)
2e Frequency 10,001 to 30,000	1.93	2.63	2.0851	-1.5196	(NS)
2f Frequency 30,001 and up	3.49	3.30	3.0770*	.3599	(NS)
Low I.Q. Subgroup					
2a Type-Token Ratio First 100 Words	48.00	49.16	.2354	-.7054	(NS)
2b Type-Token Ratio Second 100 Words	45.81	48.18	.9822	-1.7085	(NS)
2c Type-Token Ratio Combined	73.07	73.59	.6662	-.1556	(NS)
2d Frequency 1 to 10,000	93.58	94.53	.9251	-1.4525	(NS)
2e Frequency 10,001 to 30,000	1.88	2.66	2.0851	-1.7064	(NS)
2f Frequency 30,001 and up	4.34	2.78	3.0770*	2.9560	.001

* F Level significant at .05

Data on the two groups was separately examined for boys and girls. The required F level of 2.68 was not found for any vocabulary variable when sexes were differentiated. Therefore, the second hypothesis was rejected in all six aspects for both boys and girls subgroups.

Separation of the total groups by intelligence levels, as indicated by the data in Table III, failed to disclose a single significant difference on any of the six vocabulary variables of the second hypothesis between the high intelligence head start and the high intelligence non-head start

group. Therefore, the second hypothesis was rejected on every variable for the two high intelligence subgroups. However, a difference significant at better than the .05 level of confidence was found between the low intelligence head start and the low intelligence non-head start subgroups. The vocabulary variable with a difference exceeding the .05 level of significance was (2f) frequency, 30,000 and up. Therefore, the second hypothesis was accepted on variable 2f, but was rejected on variables 2a, 2b, 2c, 2d, and 2e, for the low intelligence subgroups.

The Third Hypothesis

The third hypothesis as stated in Chapter I was that limited opportunity children participating in head start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in head start activities in the number of expressions of tentativeness they use. The tenability of this hypothesis was also tested by the application of Fisher's t technique. A t score of 1.662 was required for significance at the .05 level for the total group. A t score of 1.671 was required for significance at the .05 level for the sex and intelligence subgroupings. The data relative to the third hypothesis are presented in Table IV. In this table the significance of differences between the means of the head start participants and the non-head start participants in the use of expressions of tentativeness is illustrated.

Analysis of the data reveals a difference between the means of the head start participants and the non-head start participants which was significant at better than the .01 level. The head start group used a mean of 1.38 expressions of tentativeness, whereas, the non-head start group

TABLE IV

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START GROUP AND THE NON-HEAD START GROUP IN THE USE OF EXPRESSIONS OF TENTATIVENESS

Expressions of Tentativeness	Head Start Group	Non-Head Start Gr.	F Level	t	P
Total Group	1.38	.46	10.2141*	3.1959	.01
Boys Subgroup	1.86	.63	6.3980*	3.3019	.01
Girls Subgroup	.78	.22	6.3980*	1.3031	(NS)
High I.Q. Subgroup	1.70	.93	6.5215*	1.7617	.05
Low I.Q. Subgroup	.60	.27	6.5212	.7550	(NS)

* F Level significant at .05

used a mean of .46 expressions of tentativeness. This difference of .92 expressions of tentativeness resulted in a t score of 3.1959 which exceeded the .01 level of significance. Therefore, the third hypothesis was accepted for the total groups.

Analysis of the data after separation of the two groups by sexes indicates that the boys of the head start group had a mean of 1.86 expressions of tentativeness, whereas the boys of the non-head start group used a mean of .63 expressions of tentativeness. These scores resulted in a mean difference t score of 3.3019, exceeding the .01 level of confidence. Therefore, the third hypothesis was accepted when boys were considered as a subgroup.

Consideration of the data for girls as a subgroup disclosed that girls of the head start group used a mean of .78 expressions of tentativeness while girls of the non-head start group used a mean of .22 expressions of tentativeness. However, even though this mean difference of .56 expressions

of tentativeness resulted in a t score of 1.3031, it failed to reach the required .05 level of significance. It did exceed the .10 level of significance. Therefore, the third hypothesis was rejected when girls were considered as a subgroup.

Analysis of the data for the high intelligence subgroup revealed a t score of 1.7617, exceeding the .05 level of significance. Therefore, the third hypothesis was accepted when high intelligence subgroups were compared. However, consideration of the data comparing the two low intelligence subgroups revealed something different again. The differences in the means resulted in a t score of only .7550. Thus, the third hypothesis was rejected when low intelligence subgroups were compared.

The Fourth Hypothesis

It was stated in the fourth hypothesis that there would be a significant difference between the means in the mature use of two basic structural patterns made by the head start group and the non-head start group with the mean of the head start group exceeding those of the non-head start group. Treatment of the two structural pattern aspects by Fisher's t technique is presented in Table V. As previously reported, a t score of 1.662 was required for the total groups provided an F level of 3.92 had been determined, and a t score of 1.671 was required for the sex and intelligence subgroupings provided an F level of 2.68 had been computed.

Analysis of the data pertinent to the use of the Noun-Linking Verb-Noun (N-LV-N) sentence pattern indicates that the head start group recorded a mean of 3.87 N-LV-N sentences, while at the same time the non-head start group recorded a mean of 2.19 for a difference of 1.68. This mean difference resulted in a t score of 2.1366, exceeding the required score of 1.662 for

TABLE V

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START GROUP AND THE NON-HEAD START GROUP IN TWO STRUCTURAL PATTERNS

Structural Pattern Variable	Head Start Group	Non-Head Start Gr.	F Level	t	P
Total Group					
4a (N-LV-N)	3.87	2.19	4.5650*	2.1366	.05
4b Partial	1.69	3.25	6.7111*	-2.5905	.01
Boys Subgroup					
4a (N-LV-N)	3.69	2.40	1.6010	1.2300	(NS)
4b Partial	2.00	2.77	3.0574*	-.9622	(NS)
Girls Subgroup					
4a (N-LV-N)	4.09	1.91	1.6010	1.8138	(NS)
4b Partial	1.30	3.90	3.0574*	-2.8548	.01
High I.Q. Subgroup					
4a (N-LV-N)	4.14	2.53	1.7460	1.3024	(NS)
4b Partial	1.57	3.27	2.2675	-1.7945	(NS)
Low I.Q. Subgroup					
4a (N-LV-N)	3.20	2.05	1.7460	.9317	(NS)
4b Partial	2.00	3.24	2.2675	-1.3130	(NS)

* F Level significant at .05

significance at the .05 level. The difference favored the head start group as hypothesized. Therefore, the fourth hypothesis was accepted with regard to the use of the N-LV-N sentence pattern for the total group.

Separation of the two groups by sexes was again done and the data re-examined. The scores of the groups of boys were considered first.

Boys in the head start group used a mean of 3.69 N-LV-N sentences while boys of the non-head start group used a mean of 3.40 N-LV-N sentences. It can be seen from the data in Table V that this resulted in a difference in means between the two groups of 1.29 with a t score of 1.23. This t score was below the score required for the .05 level of significance.

Therefore, the fourth hypothesis was rejected on the variable of the N-LV-N structural pattern when the scores of the boys of the two groups were considered.

Girls in the head start group displayed a mean of 4.09 sentences falling into the N-LV-N structural pattern while girls of the non-head start group displayed a mean of 1.91 sentences falling into this pattern. Those scores resulted in a mean difference of 2.18 between the two groups. This mean difference was translated to an F ratio of 1.6010, failing to reach the ratio of 2.68 required for rejecting the Null hypothesis at the .05 level. Therefore, the fourth hypothesis was rejected for girls as a subgroup with respect to the use of the N-LV-N structural pattern.

Separation of the two groups by intelligence levels was again done and the data re-examined. Differences in the means of both the high and low intelligence subgroupings failed to result in a t score sufficient to reach the .05 level of significance. Therefore, the fourth hypothesis was rejected on the variable of the N-LV-N structural pattern when the scores of the high and low intelligence subgroups were considered.

Analysis of the data pertinent to the use of the partial or incomplete sentence pattern indicates that the head start group used a mean of only 1.69 of these expressions, while the non-head start group used a mean of 3.25, exceeding the t score required for significance at the .01 level. Therefore, the fourth hypothesis was accepted with respect to use of the partial or incomplete sentence pattern when total groups were compared.

Separation of the two groups for analysis by sexes was repeated, and scores for the boys were re-examined. Boys in the head start group displayed a mean use of partial sentences which was less than the mean of the non-head

start group, but the difference failed to result in a t score significant at the .05 level. Therefore, the fourth hypothesis was rejected with respect to use of the partial or incomplete sentence pattern for boys as a subgroup.

Girls in the head start group recorded a mean score of 2.60 fewer partial or incomplete sentences than the non-head start group. This difference in means resulted in a t score of -2.74, which exceeded the score at the .01 level of significance. Therefore, the fourth hypothesis was accepted for girls as a subgroup with respect to the use of the partial or incomplete sentence pattern.

Division of the two groups for analysis by intelligence levels was repeated. The head start high intelligence subgroup recorded a mean score of 1.70 fewer partial or incomplete sentences than the non-head start high intelligence group. This difference in means resulted in an F ratio of only 2.2675, which fell below the required 2.68 level so as to reject the Null hypothesis. Therefore, the fourth hypothesis was rejected for the high intelligence subgroup with respect to the use of the partial or incomplete sentence pattern.

Head start low intelligence students displayed a mean use of partial or incomplete sentences which was less than the mean of the low intelligence non-head start group, but the difference fell just short of a t score significant at the .05 level. Therefore, the fourth hypothesis was rejected with respect to use of the partial or incomplete sentence pattern for the low intelligence subgroups.

The Fifth Hypothesis

It was stated in the fifth hypothesis that there would be a significant difference between the means of the head start group and the non-head start group with respect to their use of vivid and colorful expressions. Table VI graphically presents the significance of the differences between the head start group and the non-head start group in their use of vivid and colorful expressions. Fisher's t technique was applied to the scores to test the tenability of this hypothesis.

TABLE VI

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START GROUP AND THE NON-HEAD START GROUP IN THE USE OF VIVID AND COLORFUL EXPRESSIONS

Vivid and Colorful Expressions	Head Start Group	Non-Head Start Gr.	F Level	t	P
Total Group	1.83	.46	29.0203*	5.3870	.01
Boys Subgroup	2.07	.47	10.4718*	4.7680	.01
Girls Subgroup	1.52	.45	10.4718*	2.7731	.01
High I.Q. Subgroup	1.65	.67	10.7686*	2.4944	.01
Low I.Q. Subgroup	2.27	.38	10.7686*	4.7967	.01

* F Level significant at .05

Analysis of the data reveals a difference between the means of the head start group and the non-head start group which was significant at better than the .01 level. There was a difference of 1.37 vivid and colorful expressions between the two groups resulting in a t score of 5.3870, exceeding the .01 level of significance. Therefore, the fifth hypothesis was accepted for the total group.

Examination of the data in Table VI after separating the sexes reveals essentially the same information. Boys of the head start group used a mean of 2.07 vivid and colorful expressions while boys of the non-head start group used a mean of only .47 vivid and colorful expressions. This difference in means resulted in a t score of 4.7680, exceeding the .01 level of significance. Therefore, the fifth hypothesis was accepted for boys as a subgroup.

Girls of the head start group used a mean of 1.52 vivid and colorful expressions, while girls of the non-head start group used a mean of only .45, for a mean difference of 1.07. This difference resulted in a t score of 2.7731, exceeding the .01 level of significance. Thus the fifth hypothesis was accepted for girls as a subgroup.

Examination of the data in Table VI after separating by intelligence levels again reveals the same information. The high intelligence head start group used a mean of 1.65 vivid and colorful expressions while the high intelligence non-head start group used a mean of only .67 vivid and colorful expressions. This difference in means resulted in a t score of 2.4944, exceeding the .01 level of significance. Therefore, the fifth hypothesis was accepted for the high intelligence subgroup.

Subjects of the low intelligence head start group used a mean of 2.27 vivid and colorful expressions while subjects of the low intelligence non-head start group used a mean of only .38 vivid and colorful expressions. This difference in means resulted in a t score of 4.7967, exceeding the .01 level of significance. Therefore, the fifth hypothesis was accepted for the low intelligence subgroup.

The fifth hypothesis was thus accepted for the total groups as well as each of the four subgroups. This was the only hypothesis supported to this degree in the entire study.

The Sixth Hypothesis

It was stated in the sixth hypothesis that there would be a significant difference between the means of the two groups in the mature use of mazes as holders and edits rather than as noises and repeats with the difference favoring the head start participants. The significance of differences between the two groups in their use of mazes as holders and edits or noises and repeats is presented in Table VII.

Analysis of the data pertinent to the use of mazes as holders and edits indicates that the total head start group recorded a mean 10.27 such uses, while at the same time the total non-head start group recorded a mean of 9.42 such uses for a difference in means of .85. This mean difference resulted in a t score of .5624, short of reaching the required score of 1.662 for significance at the .05 level. The difference favored the head start group as hypothesized although it was not statistically significant. Therefore, the sixth hypothesis was rejected with respect to use of mazes as holders and edits for the total group.

Separation of groups by sex was again performed and analysis of the data repeated. This analysis revealed that boys of the head start group used mazes as holders and edits a mean 11.24 times while the non-head start boys used them as such a mean of 9.17 times. This difference in the means of the two groups of boys resulted in a t score of 1.0340, short of the .05 level of significance. Therefore, the sixth hypothesis was again rejected with respect to use of mazes as holders and edits for boys as a subgroup.

TABLE VII

SIGNIFICANCE OF DIFFERENCES BETWEEN THE HEAD START GROUP AND THE NON-HEAD START GROUP IN THEIR USE OF MAZES

Use of Mazes Variable	Head Start Group	Non-Head Start Gr.	F Level	t	P
Total Group					
Edits and Holders	10.27	9.42	.3163	.5624	(NS)
Noises and Repeats	12.23	13.52	.3420	-.5848	(NS)
Boys Subgroup					
Edits and Holders	11.24	9.17	.4786	1.0340	(NS)
Noises and Repeats	14.34	15.10	1.3800	-.2604	(NS)
Girls Subgroup					
Edits and Holders	9.04	9.77	.4786	-.3173	(NS)
Noises and Repeats	9.57	11.36	1.3800	-.5415	(NS)
High I.Q. Subgroup					
Edits and Holders	10.59	13.27	2.0173	-1.1585	(NS)
Noises and Repeats	12.22	18.67	1.6292	-1.8992	(NS)
Low I.Q. Subgroup					
Edits and Holders	9.47	7.86	2.0173	.6944	(NS)
Noises and Repeats	12.27	11.43	1.6292	.2456	(NS)

Girls of the head start group used mazes as holders and edits by a mean of 9.04 times while girls of the non-head start group used them as such a mean of 9.77 times. This difference in means resulted in a t score of -.3173, far short of the required .05 level of significance. Therefore, the sixth hypothesis was rejected for girls as a subgroup with respect to the use of mazes as edits and holders.

Analysis of the data pertinent to the use of mazes as edits and holders was repeated following separation of the subjects of the two groups into high and low intelligence subgroups. The high intelligence head start subjects displayed a mean of 10.59 mazes used as holders and edits.

The high intelligence non-head start subjects displayed a mean of 13.27 mazes used as holders and edits. This difference in means resulted in a t score of -1.1585, short of the required .05 level of significance. Therefore, the sixth hypothesis was rejected with respect to the use of mazes as holders and edits for the high intelligence subgroup.

Low intelligence subjects in the head start group displayed a mean of 9.47 mazes used as holders and edits while the low intelligence subjects in the non-head start group displayed a mean of 7.86 mazes used as holders and edits. This difference in means resulted in a t score of .6944, short of the .05 level of significance. Therefore, the sixth hypothesis was rejected for the low intelligence subgroup with respect to the use of mazes as holders and edits.

With respect to use of mazes as noises and repeats, no significant differences were found between the total groups, sex subgroups, or intelligence subgroups. Therefore, the sixth hypothesis with respect to such use of mazes was rejected for the total groups, the boys subgroups, the girls subgroups, the high intelligence subgroups, and the low intelligence subgroups.

Summary

Comparisons of oral language development were made between a group of first grade pupils who had experienced eight weeks of Project Head Start activities prior to first grade enrollment and a group of comparable first grade pupils who had not experienced these activities. The two groups were further subdivided by sexes and intelligence levels for comparison. The findings are reviewed and summarized in the paragraphs which follow:

The results indicated that the total head start group showed statistically significant differences in only one of the eight extent of verbalization aspects of oral language development over the total non-head start group. This one aspect was the average length of communication or sentence units. Therefore, the first hypothesis was accepted at the .05 level of significance for one extent of verbalization aspect, but rejected for the other seven.

The first hypothesis was also rejected in all eight extent of verbalization aspects for boys and girls at the .05 level of significance. However, findings revealed significant differences on some of these aspects when the two groups were divided into high and low intelligence levels. Differences between the high intelligence subgroups exceeded the .05 level of significance in the subhypotheses relative to the total number of words in the transcripts, average phonological unit length, number of communication units, average communication unit length, and the number of mazes. However, these differences were in the direction opposite to that hypothesized except for the number of mazes. Therefore, the first hypothesis was accepted for the high intelligence subgroup on only one variable--the number of maze units.

Findings also revealed significant differences on three extent of verbalization aspects between the low intelligence subgroups. Differences between the low intelligence subgroups exceeded the .05 level of significance in the subhypotheses relative to the total words in the transcript, average phonological unit length, and average communication unit length. Thus, the first hypothesis was accepted for three extent of verbalization aspects and rejected on five for the low intelligence subgroups.

Findings revealing significant differences between the two total groups were scored on two of the six vocabulary variables compared. Head start pupils used fewer words from the 10,001 to 30,000 frequency list as hypothesized, and more words from the 30,001 and up list as hypothesized. Therefore, the second hypothesis was accepted on two variables and rejected on four variables with respect to the total groups. Division into boys, girls, and high intelligence subgroups revealed no significant differences. Thus, the second hypothesis was rejected in all six aspects for those three subgroups. However, low intelligence head start pupils used significantly more vocabulary words from the 30,001 and up list than the low intelligence non-head start group. Therefore, the second hypothesis was accepted on one vocabulary variable and rejected on five vocabulary variables for the low intelligence subgroups.

The data indicate that significant differences in the use of expressions of tentativeness were displayed by the two groups which favored the total head start group. These differences were also significant favoring the head start boys and head start high intelligence subgroups. Differences failed to reach the .05 level of significance required for girls and low intelligence subgroups. The third hypothesis was accepted for the total group, for boys as a subgroup, and for the high intelligence subgroup.

The analysis of the data relative to differences in the use of two structural patterns revealed that significant differences existed between the two total groups in their use of the Noun-Linking Verb-Noun and the partial sentence patterns. The differences favored the total head start group. Girls of the head start group also displayed differences over the girls of the non-head start group which were significant at better than

the .05 level in their use of partial sentences. Thus the fourth hypothesis was accepted on both variables for the total group, and one variable for the girls subgroup. It was rejected for one variable for the girls subgroup, and for both variables for boys, and intelligence subgroups.

Differences significant at better than the .01 level were found between the two groups in their use of vivid and colorful expressions. This difference favored the head start group as hypothesized. The fifth hypothesis was accepted for the total groups and each of the subgroups.

No significant differences were found between the two groups in their use of mazes as either holders and edits or noises and repeats. Therefore, the sixth hypothesis was completely rejected.

The next chapter will present a summary of the study and a statement as to the conclusions reached. Recommendations for further research in this area will be listed.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Linguists say that normal children by ages four to six are practically adults, linguistically speaking. By this they mean that children have basic control over the sounds, vocabulary, and syntax of the spoken language. They state that children's vocabularies are frequently underestimated. However, a growing number of national leaders and educators are becoming aware of the fact that the language patterns of culturally deprived families is not normal when compared with the general population.

In an effort to improve this situation, local communities have been encouraged to establish Project Head Start programs. A major objective of the activities provided in these programs has been the enhancement of language development

Summary

The purpose of this study was to compare the relative status of oral language development of two groups of first grade children to determine the effects of Project Head Start activities upon the oral language development of disadvantaged children. The level of oral language development of the children was carefully determined by use of procedures and techniques developed and described by Loban (4), Strickland (9), and Giles (2).

It was hypothesized that the group experiencing Project Head Start activities during the summer of 1965 would display significantly greater oral language development status in the various aspects of oral language

development compared than would the group not experiencing Project Head Start activities. The analysis of statistical data from test interviews using transcriptions of pupil utterances recorded in structured interviews supported the hypotheses of this study.

Comparison of oral language development was made on the following variables: (1) eight extent of verbalization aspects, (2) six spoken vocabulary aspects, (3) expressions of tentativeness, (4) two structural pattern aspects, (5) colorful and vivid expressions, and (6) two use of mazes aspects. The total groups were compared on each of the variables and then the groups were divided by sex and intelligence subgroups for further comparisons. Fisher's t technique was used to test the tenability of all hypotheses. The .05 level of confidence was used to test the significance of each of the twenty variables.

The hypotheses tested by this study were:

1. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities as measured by extent of verbalization, as follows:

   a. total number of words in transcript
   b. number of phonological units
   c. length of phonological units
   d. number of communication (sentence) units
   e. length of communication (sentence) units
   f. number of maze units
   g. length of maze units
   h. number of words between mazes

2. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head

Start activities in aspects of their vocabulary development, as listed below:

a. Diversity--Type-Token Ratio for First 100 Words
b. Diversity--Type-Token Ratio for Second 100 Words
c. Diversity--Type-Token Ratio for Combined 200 Words
d. Frequency--Number of words used in 10,000 most commonly used words in the English language
e. Frequency--Number of words used in 10,001 to 30,000 most commonly used words in the English language
f. Frequency--Number of words used in 30,001 plus most commonly used words in the English language

3. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in the number of expressions of tentativeness.

4. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in their mature use of structural patterns in their sentences, as follows:

a. Number of Noun-Linking Verb-Noun (N-LV-N) units
b. Number of partial or incomplete units

5. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in the number of their vivid and colorful expressions.

6. Limited opportunity children participating in Project Head Start activities will exhibit significantly greater oral language development when compared to limited opportunity children not participating in Project Head Start activities in their use of mazes, as follows:

a. Number of mazes used as edits and holders
b. Number of mazes used as noises and repeats

One-hundred four pupils enrolled in five of the eight regularly scheduled first grade classes of Dunbar Elementary School in Fort Worth, Texas during the 1965-1966 school year were included in this study. The five teachers whose pupils were included in this study were comparable in terms of certification and experience. The subjects chosen for participation in this study comprised approximately one half of the total first grade population. The total first grade population of the school attendance area had been designated as disadvantaged. All first grade pupils had been eligible and invited to participate in Project Head Start activities during the summer of 1965.

When comparing the total groups, differences significant at the .05 level or better were found on seven of the twenty variables compared and tested by the six hypotheses. They were: (1e) length of communication units, (2e) vocabulary frequency--10,001 to 30,000, (2f) vocabulary frequency--30,001 and up, (3) expressions of tentativeness, (4a) use of the Noun-Linking Verb-Noun sentence pattern, (4b) use of the partial or incomplete sentence, and (5) use of vivid and colorful expressions. No significant differences favored the non-head start group.

When comparing the head start boys with the non-head start boys, differences significant at the .05 level or better were found on only two of the twenty variables compared and tested by the six hypotheses. They included: (4) use of expressions of tentativeness, and (6) use of vivid and colorful expressions. No significant differences were found favoring the non-head start group of boys. No significant differences were found on eighteen of the twenty variables for boys as subgroups.

Comparison of the head start girls with the non-head start girls revealed differences significant at the .05 level or better on only two of the twenty variables compared and tested by the six hypotheses. Included were: (4b) use of the partial or incomplete sentence, and (5) use of vivid and colorful expressions. No significant differences were found favoring the non-head start girls. Again, no significant differences were exhibited by the subgroups of girls on eighteen of the twenty variables.

Separation of the two total groups into high and low intelligence groups for analysis revealed differences significant at better than the .05 level of confidence as hypothesized on three of the twenty variables compared and tested by the six hypotheses. These variables were: (1f) number of maze units, (3) expressions of tentativeness, and (5) use of vivid and colorful expressions. Significant differences favored the non-head start high intelligence subgroup on four of the twenty variables, including (1a) total number of non-maze words in transcript, (1c) length of phonological units, (1d) number of communication units, and (1e) length of communication units. No significant differences were found on the remaining thirteen variables.

Comparison of the low intelligence head start group with the low intelligence non-head start group revealed differences significant at the .05 level or better on three of the twenty variables compared and tested by the six hypotheses. These were: (1e) length of communication units, (2f) vocabulary frequency--30,001 and up, and (5) use of vivid and colorful expressions. No significant differences were exhibited which favored the non-head start group. No significant differences were found on seventeen of the twenty variables when comparing low intelligence subgroups.

Conclusions

The conclusions of this study are necessarily limited because of the fact that IQ's reported for the two groups were not comparable, except in the intelligence subgroupings. This study should be considered exploratory in nature. Its major contribution should be considered its recommendations for further research. However, in the light of the evidence and within the limitations noted in this study, the following conclusions seem to be justified:

1. Project Head Start participants did display greater oral language development than non-head start participants. Pupils having these experiences were more advanced in the areas of length of sentences, use of words from the advanced vocabulary lists, use of the Noun-Linking Verb-Noun sentence pattern, lack of use of partial or incomplete sentences, use of expressions of tentativeness, and use of vivid and colorful expressions.

2. Project Head Start activities, if effective, were equally effective in encouraging the language development of boys and girls. Significant differences were found to favor head start boys and girls on the same number of variables.

3. Project Head Start activities were found to be more effective in encouraging the oral language development of low intelligence pupils than high intelligence pupils. Significant differences were found favoring the high intelligence and low intelligence groups on three variables. However, the non-head start high intelligence subgroup displayed differences favoring them on four variables. This was the only subgroup which displayed differences contrary to the direction hypothesized.

Recommendations

It is suggested that persons preparing materials for use in head start programs consider the findings of this study. These findings have a number of implications for the type of materials and activities to be included in head start curriculums.

Provision should be made for head start pupils to have many opportunities to engage in activities which enhance the opportunities for discussion,

communication, and sharing in situations where they have someone to whom they wish to communicate successfully. Easel painting, clay manipulation, playing house, talking over the telephone, and creative dramatics are activities which encourage children to talk. Completing pages in a color workbook, cutting with scissors, and doing routine seatwork are activities which restrict opportunities to make and use oral communication skills.

Head Start teachers should increase their use of experience stories which are recorded just as they come from the lips of the children. It may be better to accept the children's usage which does not ring true in the adult ear than to try and correct or purify the young child's usage because, by taking down children's stories in their own language, they can be more sure that the words and the ideas behind the words have meaning for them.

The experience of collecting data and the evidence presented by this study suggested other areas for investigation. The following recommendations are made for future research in this area.

1. The effects of head start activities upon the future attendance records of participants should be compared to the attendance records of non-head start participants. This is suggested because several more days were required to catch non-head start participants in school so as to conduct interviews than to catch head start participants. It never took more than one day to complete make-up tests for head start participants. It often took five or six days to complete make-up tests for non-head start participants.

2. The effects of head start activities upon the measured intelligence scores should be determined. This recommendation is suggested by the finding that the I.Q. scores of head start participants exceeded the I.Q. scores of the non-head start participants by a significant degree.

3. Another study such as this one, should be repeated in which pre- and post-head start oral language development data are collected for analysis so as to compare the differences in oral language development made during the same period.

4. Longitudinal studies should be made of the oral language development of head start versus non-head start participants so as to fully assess the value of head start activities over a long period of time.

5. A head start program, specifically designed to emphasize the type of experiences which enhance oral language development, should be implemented and very carefully evaluated to determine its effectiveness.

6. Two groups of comparable students--one group participating in head start-the other group desiring to participate, but unable to because no program is available,-- should be compared as above so as to determine the effects of project head start upon oral language.

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